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EXAMINER
SPIVACK, P

FRISHAUF, HOLTZ, GOODMAN AND WOODWARD
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NEW YORK, NY 10016

ART UNIT	PAPER NUMBER
1203	3

DATE MAILED: 11/19/92

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☑ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☑ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☑ Claims 1 to 56 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☑ Claims 1 to 56 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

15. Restriction to one of the following inventions is required under 35 U.S.C. § 121:

I. Claims 1 to 17, 22 to 24, 45 to 47 51 to 53, all in part and 28 to 44, 48 to 50, 52 to 56, drawn to compounds, compositions and methods of use wherein Y is sulfur and a.) dioxazinyl is present; b) dioxazinyl is absent), classified in Class 546, subclass 114 and Class 514, subclass 301.

II. Claims 1 to 17, 22 to 24, 45 to 47, 51 to 53, all in part, drawn to compounds, compositions and methods of use wherein Y is oxygen and a.) dioxazinyl is present; b.) dioxazinyl is absent, classified in Class 546, subclass 116 and class 514, subclass 302.

III. Claims 1-5, 10 to 17, 22 to 24, 45, 51, all in part, drawn to compounds, compositions and methods of use wherein Y is nitrogen and a.) dioxazinyl is present; b.) dioxazinyl is absent, classified in Class 546, subclass 113 and Class 514, subclass 300.

16. The inventions are distinct, each from the other, for the following reasons:

The species as defined above are not mutually suggestive. If a reference containing a furo [3,2-C] pyridine were found, it would not render prima facie obvious or anticipate the species containing thieno [3,2-C] pyridine. The same reasoning would apply to a species using a pyrrolo [3,2-C] pyridine reference.

Because these inventions are distinct for the reason given above and have acquired separate status in the art due to their recognized, divergent subject matter and different classification, restriction for examination purposes as indicated is proper.

Should Applicant traverse on the ground that the inventions are not patentably distinct, Applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is not the case. In either instance, if the Examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 of the other invention.

17. During a telephone conversation with Herbert Goodman an October 8, 1992, a provisional election was made to prosecute 2-acetoxy-5- (α - cyclopropycarbonyl-2-fluorobenzyl)-4, 5, 6, 7-tetrahydrothieno[3,2-C]pyridine, the species of claim 31, that falls in group Ib, claims 1 to 17, 22 to 24, 45 to 47, 51 to 53, all in part, and 28 to 44, 48 to 50, 52 to 56. Affirmation of this election must be made by Applicant in responding to this Office Action. The subject matter of claims 1 to 17, 22 to 24, 45 to 47 and 51 to 53, wherein Y is oxygen or nitrogen, is withdrawn from further consideration by the Examiner, 37 C.F.R. 1,142(g), as being drawn to nonelected inventions.

18. Claims 1 to 17, 22 to 24, 45 to 47 and 51 to 53 are rejected under judicial doctrine as drawn to an improper Markush group. The claims recite compounds with various cores that are not art recognized equivalents. The compounds do not have a community of properties that are recognized in scientific classification. In re Harnisch 206 USPQ 300.

This improper Markush rejection can be overcome by deleting the nonelected subject matter from the generic/subgeneric claims.

19. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention, i.e, failing to provide an enabling disclosure.

In claim 1 the recitation "aryl", "aralkyl", "aralkyloxy", "aralkyloxy-carbonyloxy", aralkylamino" and "aralkyloxycarbonylamino" wherein said groups" have from 6 to 10 carbon atoms in a carbocyclic ring" is clearly broader than enabled. What is the degree of saturation/unsaturation? Are hetero atoms excluded? Applicant should recite those specific

groups contemplated.

20. Claims 1 to 17, 22 to 24, 45 to 47 and 51 to 53 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

The specification is insufficient to support claims of the breadth sought.

21. Claims 1 to 17, 22 to 24, 45 to 47 and 51 to 53 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A.) It is unclear in the definitions of R^2 and R^3 where the Markush group begins and ends. The definitions of the substituent groups overlap with the definitions of R^2 and R^3. An indented subparagraph format is suggested.

B.) Parenthetical information as in claims 1, 5, 12, 13, 19, 46, 47, 52 to 54 renders the scope of the claim indefinite. Are (5-methyl-2-oxo-1,3-dioxolen-4-yl) methoxy and (5-phenyl-2-oxo- 1,3-dioxolen-4-yl)- methoxy to be considered possible examples of a phthalidyloxy group? Clarification is required.

22. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

23. Claims 1 to 56 are rejected under 35 U.S.C. § 103 as being unpatentable over Frehel et al., U.S. Patent No. 4,136,186; Bouscuet et al., U.S. patent No. 4,458,074 and Badorc et al., EP 421861.

Badorc, Bouscuet and Frehel, taken together, teach thieno [3,2-C] pyridine compounds with platelet anti-aggregation properties that are closely related to the Applicant's invention.

The compounds of formula I of the Badorc reference in which Z may be sulfur, m=1, n=2, R_1 = alkyl, R=CHR_2R^1, R^2=H, R^1 =a halogen-substituted phenyl, differs from the Applicant only by instant R^2 which is alkanoyl, alkenoyl or a carbonyl moiety.

Bouscuet's anti-thrombotic agents of formula I in which R is phenyl substituted by at least one halogen, lower alkyl radical, lower alkoxy, nitro, carboxyl or alkoxycarbonyl; R^1 = H or lower alkyl; n may be 1, have a 2-one configuration that is similar to instant formula Ia. The claims differ in that instant R^2 can only be alkanoyl, alkenoyl or carbonyl.

Frehel teaches the instant compounds in which R^1 is alkyl;

R^2 may be hydrogen; R^3 may be an acyl group; R^4 may be an optionally substituted phenyl group with at least one halogen, hydroxy, nitro, amino, cyano, carboxy, alkoxycarbonyl, C_{1-6} alkyl, C_{1-6} alkoxy group with platelet anti-aggregation activity. In this case the claims differ in that the thieno ring is disubstituted at the 2 and 3- positions.

Therefore, it is apparent hematologic activity is derived from the core thieno[3,2-C]pyridine structure. From the collective teachings of Badorc, Bouscuet and Frehel, instant R^2 may be hydrogen, lower alkyl, acyl, alkoxycarbonyl, optionally substituted phenyl, optionally substituted phenoxy, trifluoromethyl and carboxy esters; the core structures can be tautomers; and the thieno ring may be disubstituted. Functional equivalence is clearly seen because the options described above are interchangeable.

Thus, in the absence of unobvious results or evidence to the contrary, one skilled in the art would be motivated to select any of the options cited above for R^2 in instant formula I, tautomers or disubstitution of the thieno ring with the reasonable expectation of producing compounds useful as blood platelet aggregation inhibitors.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phyllis Spivack whose telephone number is (703) 308-4703.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1235.

SPIVACK:chs
November 18, 1992

C. Warren Ivy
Supervisory Patent Examiner
Group 120